

Sound Advice

A C O U S T I C S L T D

REPORT REFERENCE:

SA - 7513

INTERNAL NOISE ASSESSMENT

CLIENT:

KS4 Consulting

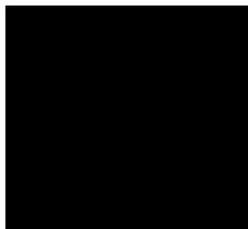
SITE:

81 – 88 Beresford Street

London

SE18 6BG

Report Presented By
Mr. B. J. Scrivener MIOA.



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1 INTRODUCTION

Sound Advice Acoustics Ltd has been instructed by KS4 Consulting, to assess the internal construction of the proposed development at 81 – 88 Beresford Street, London, SE18 6BG.

This assessment has been based on the requirements of the current Building Regulations 2010 Approved Document E 2003 Edition incorporating 2004, 2010, 2013 AND 2015 amendments.

Construction consists of a single block, with commercial use in the basement and on the ground floor. Floors one to thirteen are all for student accommodation.

The following report assesses selected room separating walls and floors for the airborne and impact sound insulation properties in accordance with Building Regulations 2010 Approved Document E 2003 Edition incorporating 2004, 2010, 2013 and 2015 amendments. Prediction calculations have been carried out using the Bastian© prediction software system and has been based on the proposed construction materials and design.

1.1 Planning Condition 23

The following Planning Condition 23 has been imposed under the planning application 21/4216/F:

Sound Insulation-Internal

Prior to the commencement of above ground works (excluding demolition), details of the proposed sound insulation measures for all divisions (walls and floors) separating bedrooms and internal/external communal areas/facilities, shall be submitted to, and approved inwriting by, the Local Planning Authority.

The scheme of noise insulation measures shall be prepared by a suitably qualified consultant/engineer and shall demonstrate that the proposed sound insulation will achieve a level of protection which is at least +10dB above the Approved Document E standard (Dwelling houses and flats) for airborne sound insulation and the details should include airborne and impact sound insulation. The approved scheme shall be installed prior to the first occupation of the residential parts of the development and shall be permanently maintained thereafter.

Therefore, this assessment has been carried out to demonstrate that Planning Condition 23 can be discharged.

2 CRITERIA

The Building Regulation Part E of schedule 1 states that:

“E1. Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that they provide reasonable resistance to sound from other parts of the same building and from other parts of the same building and from adjoining buildings.

For purpose-built dwellings and dwellings formed by material change of use the Building Regulations Approved Document E2 2003 ‘Resistance to the Passage of Sound’ requires separating structures to adhere to the following requirements as detailed in table 0.1b of the below document.

Table 0.1b: Rooms for residential purposes – performance standards for separating walls, separating floors, and stairs that have a separating function	Airborne Sound Insulation	Impact Sound Insulation
	$D_{nT'w} + C_{tr}$ dB (Minimum values)	$L'_{nT'w}$ dB (Maximum values)
Purpose built rooms for residential purposes		
Walls	43	-
Floors and Stairs	45	62
Rooms for residential purposes by material change of use		
Walls	43	-
Floors and Stairs	43	64

Section 0.8 of Approved Document E 2003 edition states;

The performance standards set out in Tables 0.1b are appropriate for walls, floors and stairs that separate spaces used for normal domestic purposes. A higher standard of sound insulation may be required between spaces used for normal domestic purposes and communal or non-domestic purposes. In these situations, the appropriate level of sound insulation will depend on the noise generated in the communal or non-domestic space. Specialist advice may be needed to establish if a higher standard of sound insulation is required and, if so, to determine the appropriate level. It has been recommended to set a criteria of $D_{nT'w} + C_{tr}$ 55dB.

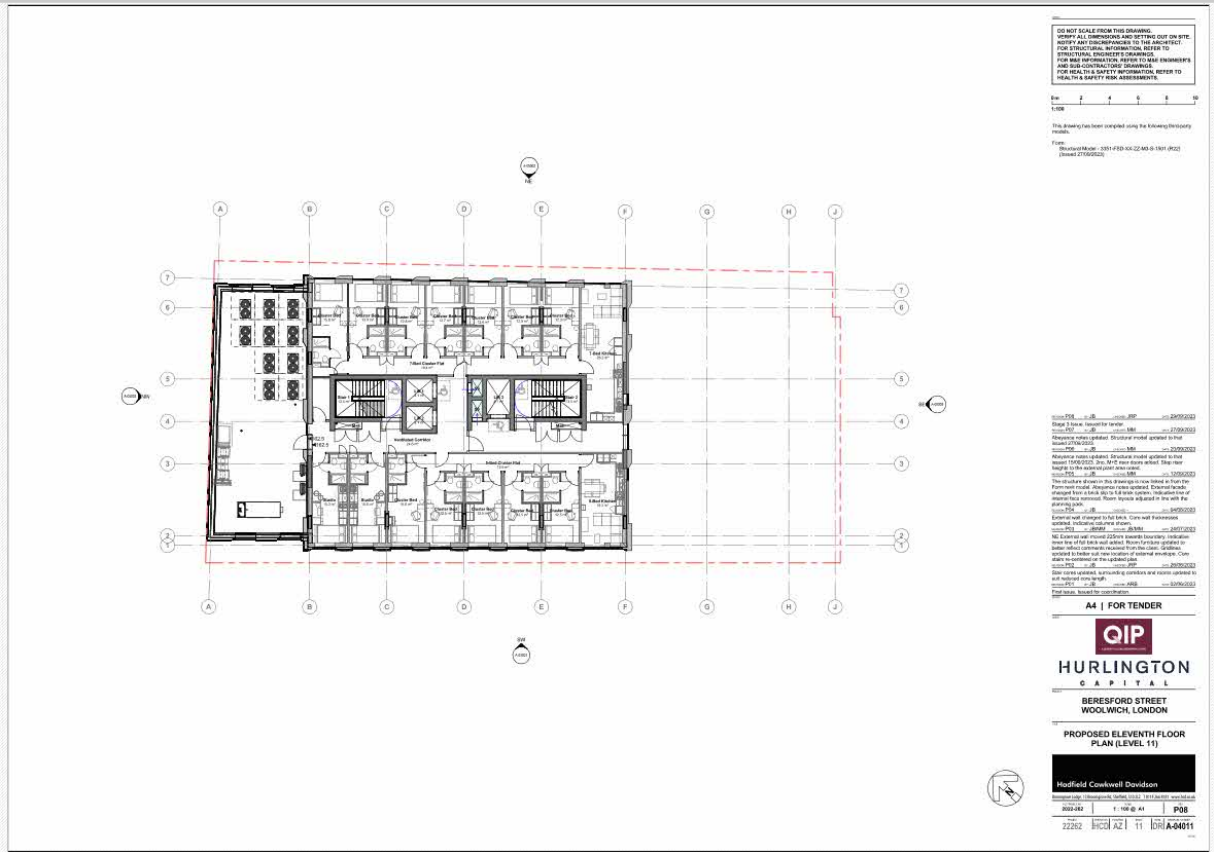
3 PROCEDURE

Calculation of the airborne and impact predicted sound transmission between rooms in buildings was carried out.

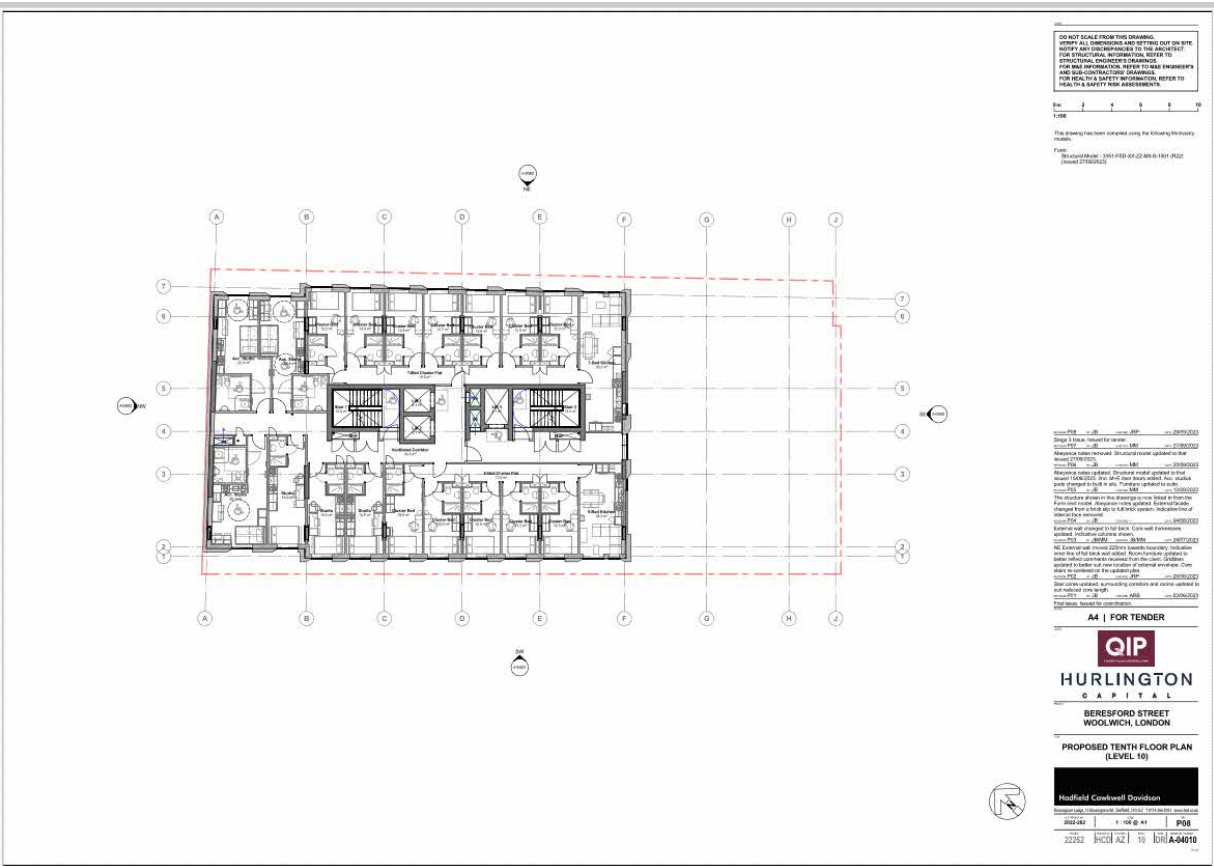
The calculations were carried out at selected areas between units. All standard separation constructions were deemed to have been constructed to the requirements of the Building Regulations 2010 Approved Document E 2003 Edition incorporating 2004, 2010, 2013 and 2015 amendments.

The following areas have been selected and calculations carried out accordingly.

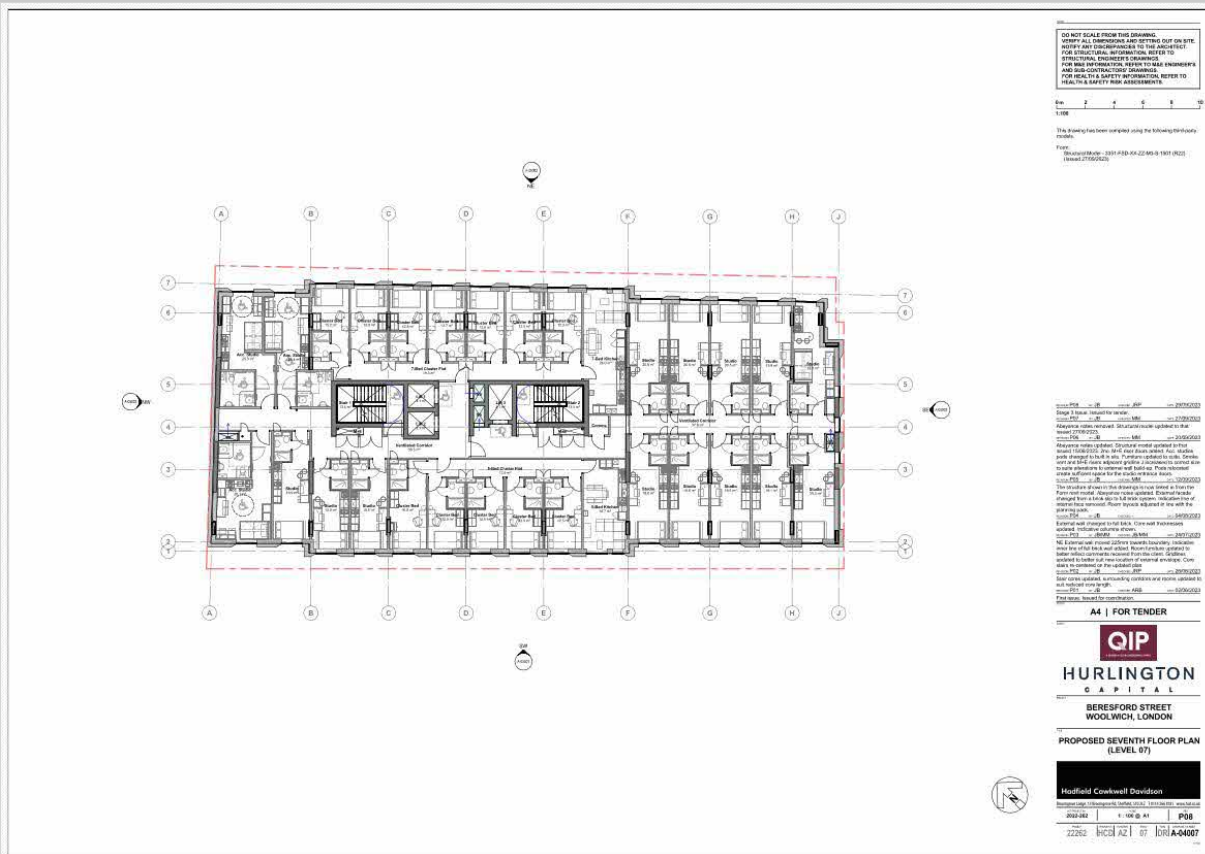
Predicted internal levels		Figure
13 th Floor – Studio	13 th Floor – Studio	1
13 th Floor – Studio	12 th Floor – Studio	2
13 th Floor – Cluster Bedroom	12 th Floor – Cluster Bedroom	3
7 th Floor – Cluster Kitchen	7 th Floor – Studio	4
7 th Floor – Studio	7 th Floor – Studio	5
7 th Floor – Studio	6 th Floor – Studio	6
Ground Floor – Gym	1 st Floor – Studio	7
Ground Floor – Laundry	1 st Floor – Acc Studio	8
Ground Floor – Office	1 st Floor Studio	9



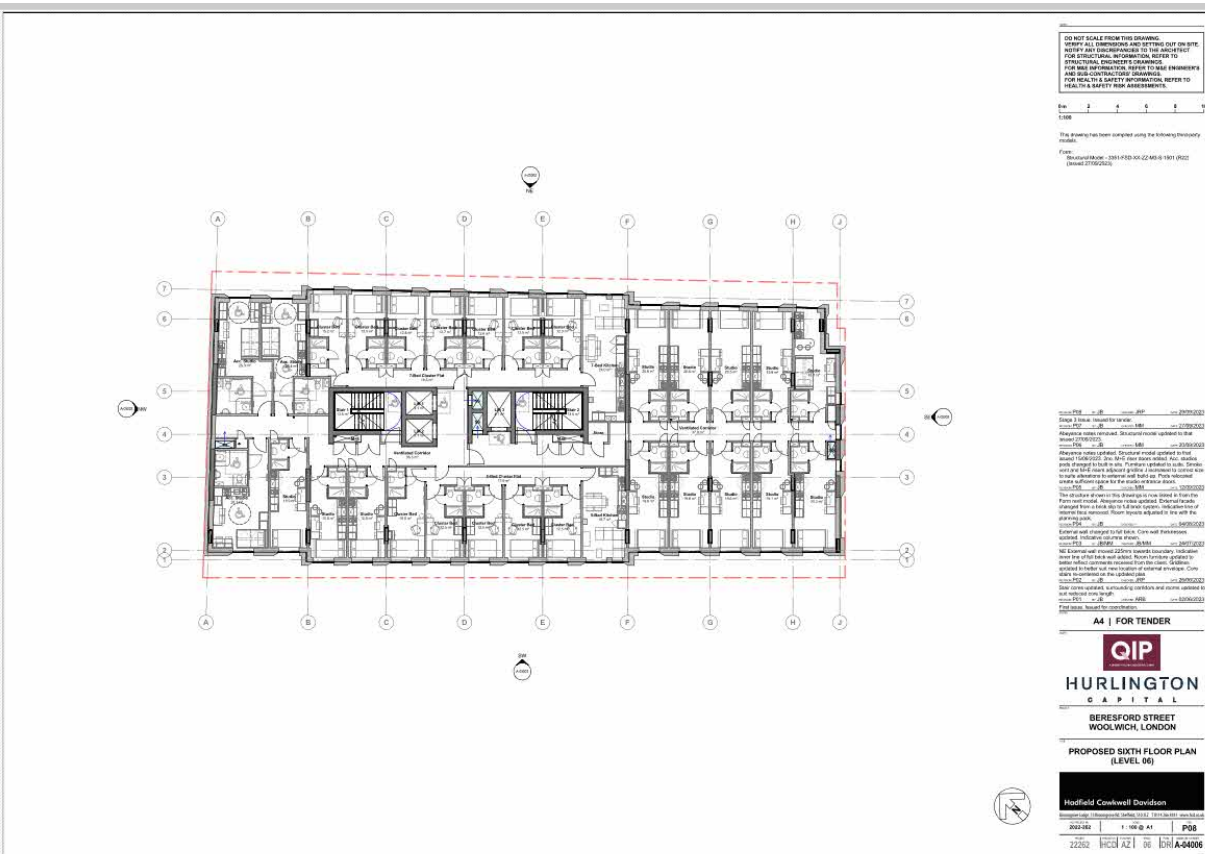
Proposed 11th Floor



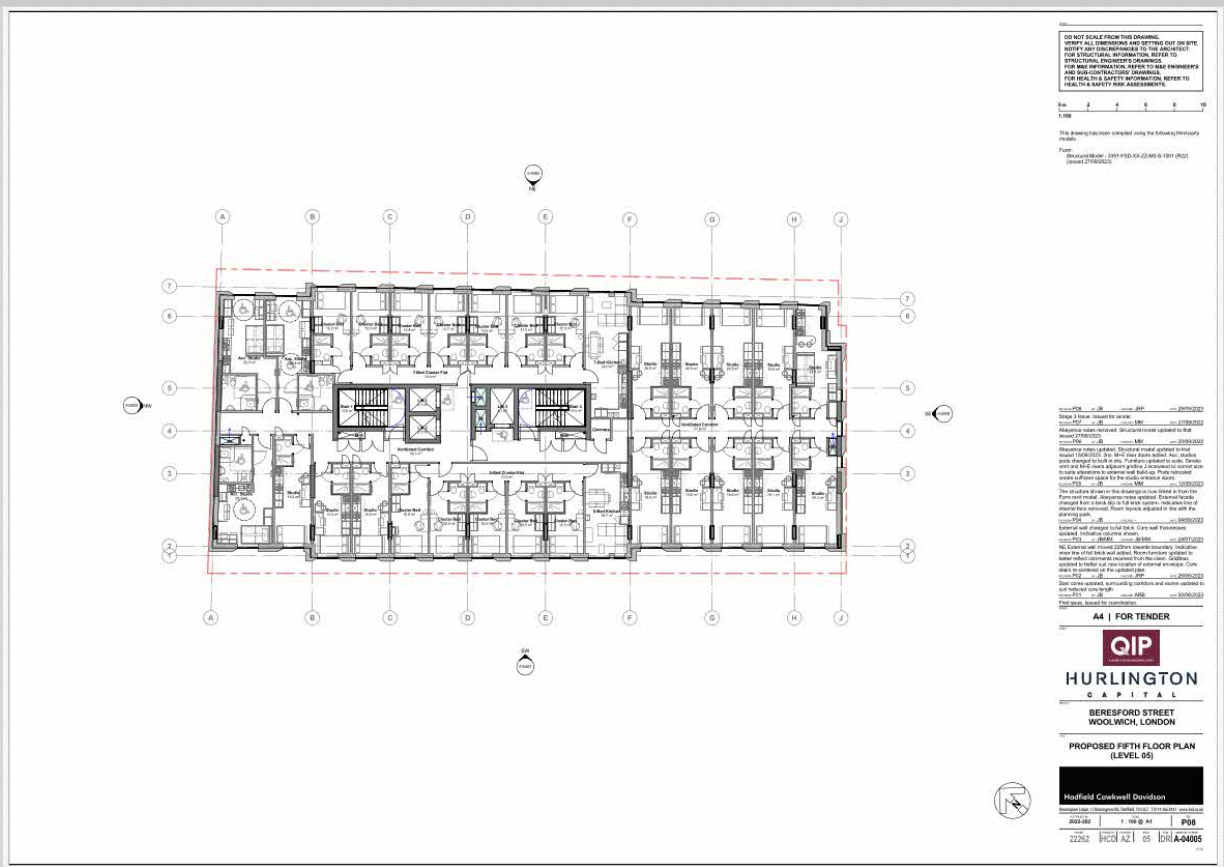
Proposed 10th Floor



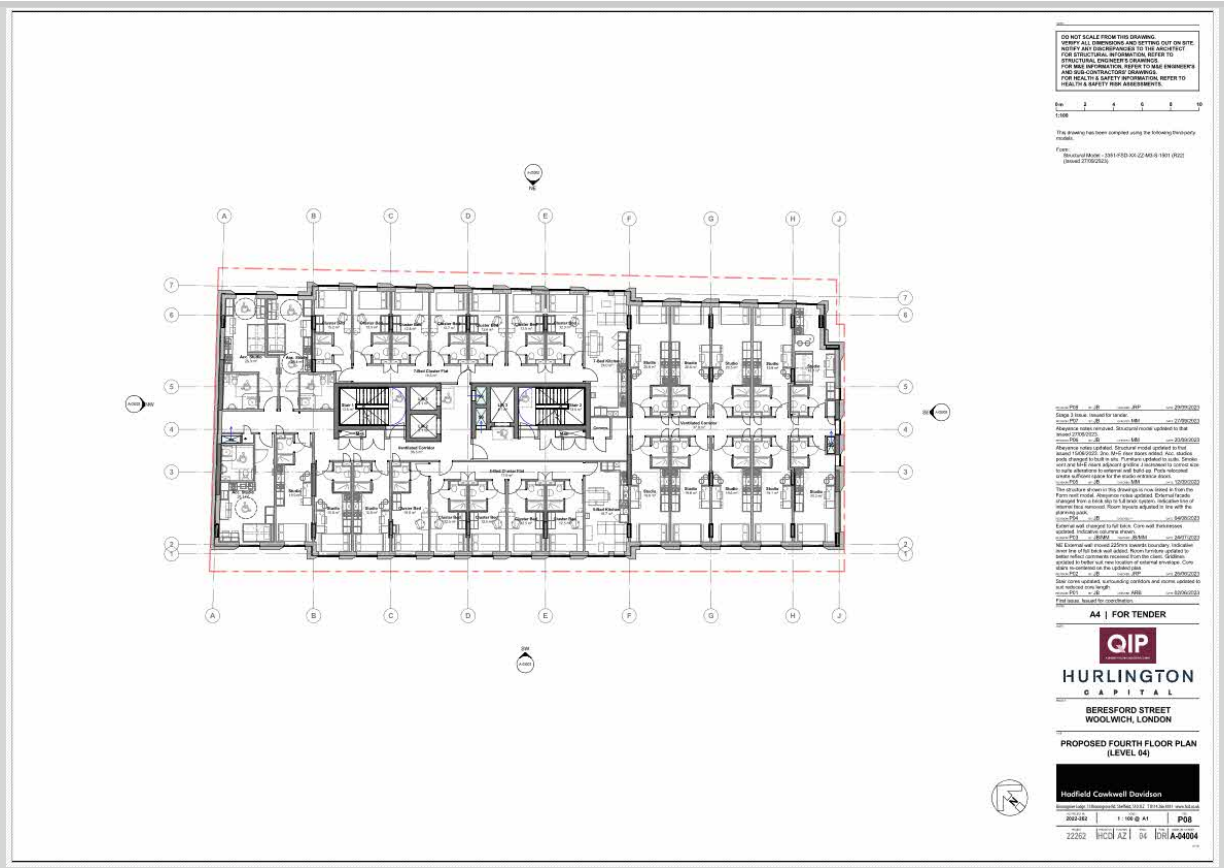
Proposed 7th Floor



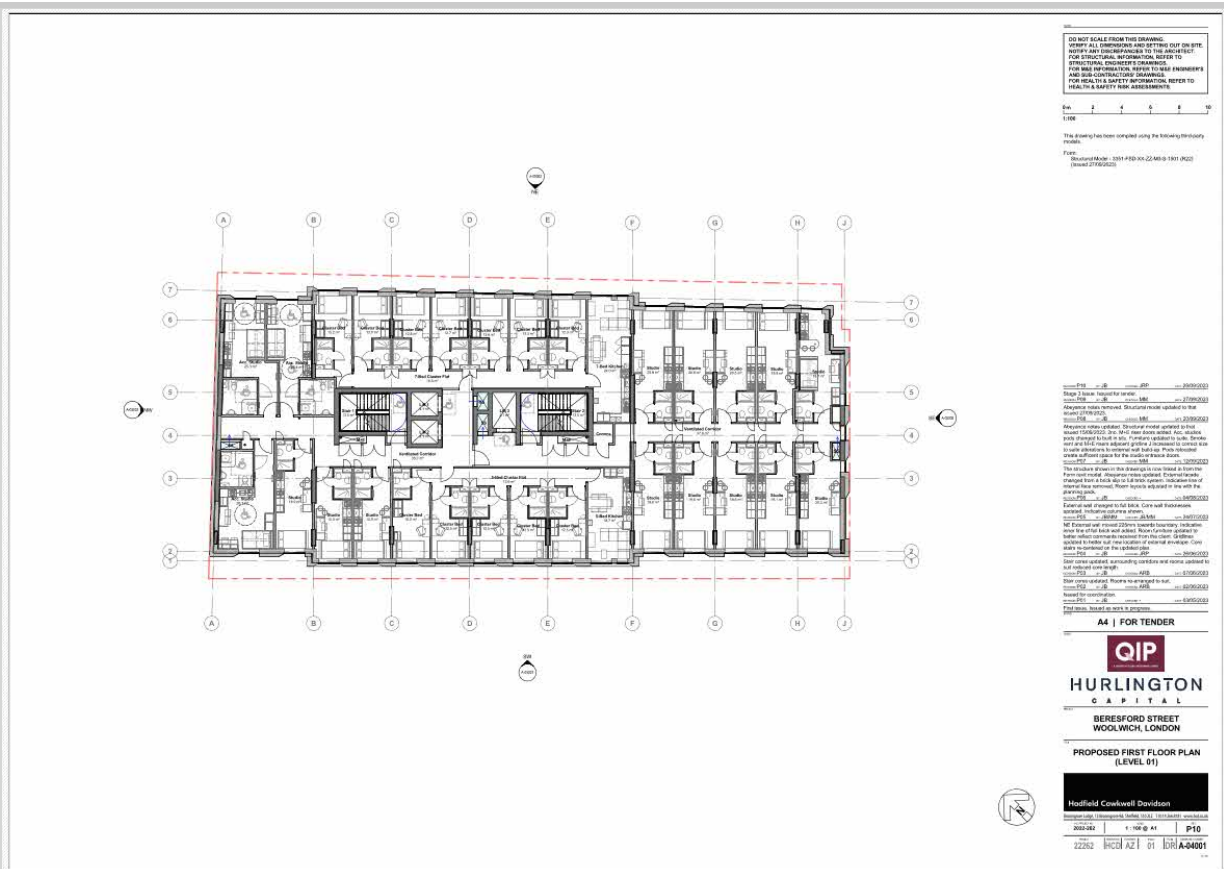
Proposed 6th Floor



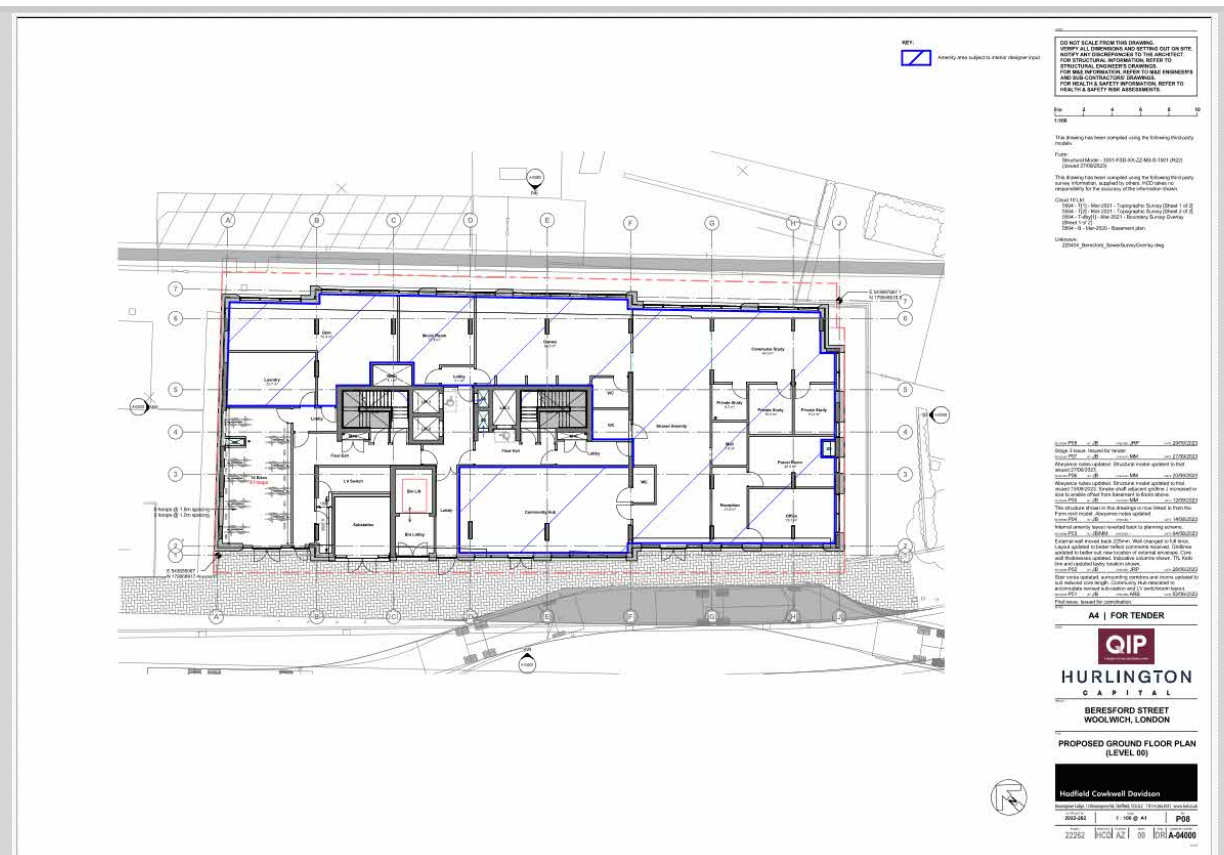
Proposed 5th Floor



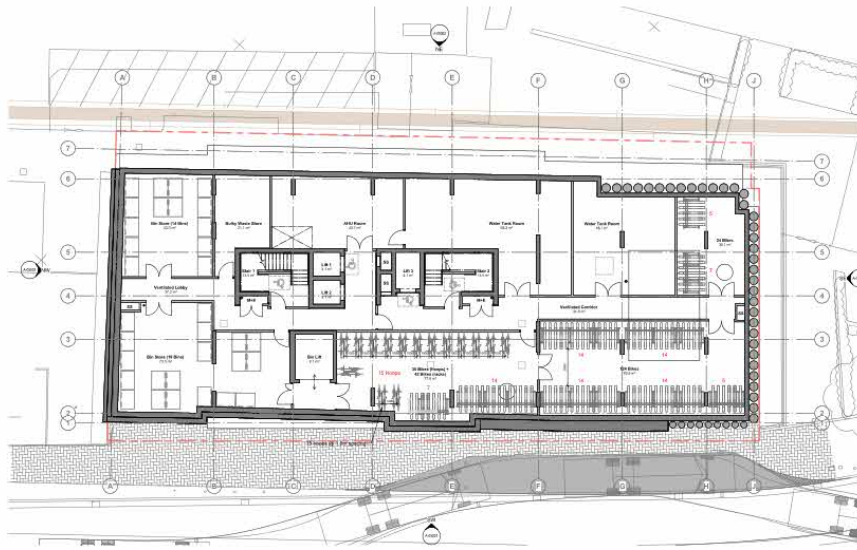
Proposed 4th Floor



Proposed 1st Floor



Proposed Ground Floor



DO NOT SCALE FROM THIS DRAWING
VERIFY ALL DIMENSIONS AND SETTING OUT ON SITE.
NOTICE AND INTERFERENCES TO THE ADJACENT
FOR STRUCTURAL INFORMATION, REFER TO
STRUCTURAL ENGINEER'S DRAWINGS.
FOR ALL INFORMATION REFER TO THE ARCHITECTS
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Revision: [Redacted]

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Checked by: [Redacted]
Approved by: [Redacted]

A4 | FOR TENDER

QIP
HURLINGTON
CAPITAL

BERESFORD STREET
WOOLWICH, LONDON

PROPOSED BASEMENT PLAN
(LEVEL B1)

Hodfield Cowkell Davidson
22262 HCD AZ1 B1 01A-04008

Proposed Basement

5 CALCULATION SUMMARY

5.1 Airborne Test – Walls & Floors

FIGURE NO.	FROM	TO	REQUIRED MIN $D_{nT,w} + C_{tr}$ dB	ACHIEVED $D_{nT,w} + C_{tr}$ dB	RESULT
1	13 th Floor – Studio	13 th Floor – Studio	43	58.0	PASS
2	13 th Floor – Studio	12 th Floor – Studio	45	63.9	PASS
3	13 th Floor – Cluster Bedroom	12 th Floor – Cluster Bedroom	45	62.6	PASS
4	7 th Floor – Cluster Kitchen	7 th Floor – Studio	43	59.3	PASS
5	7 th Floor – Studio	7 th Floor – Studio	43	58.9	PASS
6	7 th Floor – Studio	6 th Floor – Studio	45	63.8	PASS

5.2 Impact Test – Floors

FIGURE NO.	FROM	TO	REQUIRED MAX $L_{nT,w}$ dB	ACHIEVED $L_{nT,w}$	RESULT
2	13 th Floor – Studio	12 th Floor – Studio	62	42.5	PASS
3	13 th Floor – Cluster Bedroom	12 th Floor – Cluster Bedroom	62	43.6	PASS
6	7 th Floor – Studio	6 th Floor – Studio	62	41.8	PASS

5.3 Airborne Test – Commercial to Residential

FIGURE NO.	FROM	TO	REQUIRED MIN $D_{nT,w} + C_{tr}$ dB	ACHIEVED $D_{nT,w} + C_{tr}$ dB	RESULT
7	Ground Floor – Gym	1 st Floor – Studio	55	62.3	PASS
8	Ground Floor – Laundry	1 st Floor – Acc Studio	55	63.7	PASS
9	Ground Floor – Office	1 st Floor Studio	55	64.6	PASS

5.4 Airborne Test – Walls & Floors Enhanced Performance Planning Condition 23

FIGURE NO.	FROM	TO	REQUIRED MIN $D_{nT,w} + C_{tr}$ dB	ACHIEVED $D_{nT,w} + C_{tr}$ dB	RESULT
1	13 th Floor – Studio	13 th Floor – Studio	53	58.0	PASS
2	13 th Floor – Studio	12 th Floor – Studio	55	63.9	PASS
3	13 th Floor – Cluster Bedroom	12 th Floor – Cluster Bedroom	55	62.6	PASS
4	7 th Floor – Cluster Kitchen	7 th Floor – Studio	53	59.3	PASS
5	7 th Floor – Studio	7 th Floor – Studio	53	58.9	PASS
6	7 th Floor – Studio	6 th Floor – Studio	55	63.8	PASS

5.5 Impact Test – Floors Enhanced Performance Planning Condition 23

FIGURE NO.	FROM	TO	REQUIRED MAX $L_{nT,w}$ dB	ACHIEVED $L_{nT,w}$	RESULT
2	13 th Floor – Studio	12 th Floor – Studio	52	45.5	PASS
3	13 th Floor – Cluster Bedroom	12 th Floor – Cluster Bedroom	52	44.0	PASS
6	7 th Floor – Studio	6 th Floor – Studio	52	44.5	PASS

5.6 Airborne Test – Commercial to Residential Planning Condition 23


FIGURE NO.	FROM	TO	REQUIRED MIN $D_{nT,w} + C_{tr}$ dB	ACHIEVED $D_{nT,w} + C_{tr}$ dB	RESULT
7	Ground Floor – Gym	1 st Floor – Studio	55	62.3	PASS
8	Ground Floor – Laundry	1 st Floor – Acc Studio	55	63.7	PASS
9	Ground Floor – Office	1 st Floor Studio	55	64.6	PASS

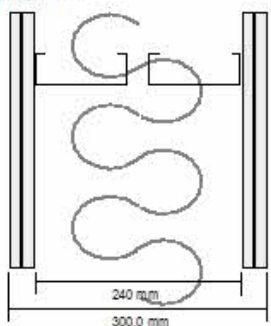
6 RECOMMENDATIONS

6.1 Separating Wall (dwelling dividing)

Calculations have been based on the following calculated attenuation figures for the proposed separating wall construction between studio rooms and clusters:

Sound Insulation Prediction (v8.0.4)
Program copyright Marshall Day Acoustics 2014
 - Key No. 1507
 Margin of error is generally within $R_w \pm 3$ dB
 Job Name:
 Job No.: Page No.: Notes:
 Date: 13 Feb 24 Initials: Sound Advice
 File Name: party.wall.kl





System description

Panel 1 : 2 x 15.0 mm Gyproc SoundBloc 15mm ($\rho: 840 \text{ kg/m}^3, E: 3.1 \text{ GPa}, \eta: 0.01$)

Cavity : Double steel stud: Stud spacing 600 mm , Infill : Rockwool (40kg/m³) Thickness : 150 mm ($\rho: 40 \text{ kg/m}^3, Rf: 16200 \text{ Pa.s/m}^2$)

Panel 2 : 2 x 15.0 mm Gyproc SoundBloc 15mm ($\rho: 840 \text{ kg/m}^3, E: 3.1 \text{ GPa}, \eta: 0.01$)

R_w 76 dB

C -3 dB

C_r -10 dB

D_{nTW} 78 dB

(f: 90Hz) (k: 11m2)

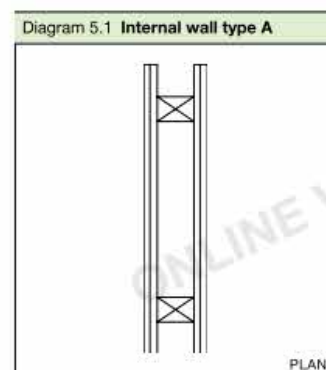
2 x 15mm Soundbloc
 70mm metal stud
 100mm cavity with
 150mm of 45kg/m³
 mineral wool
 70mm metal stud
 2 x 15mm Soundbloc

6.2 Separating Wall (non-load bearing internal dwelling)

Calculations have been based on the following calculated attenuation figures for the proposed separating wall within residential apartments. The construction can be either 12.5mm wallboard / 70mm metal stud including 50mm mineral wool / 12.5mm wallboard or equivalent (R_w 40dB minimum), or 2 x 12.5mm plasterboard / 70mm metal stud with no insulation / 2 x 12.5mm wallboard or equivalent (R_w 40dB minimum). One of these two must be selected.

Internal Wall Type A:

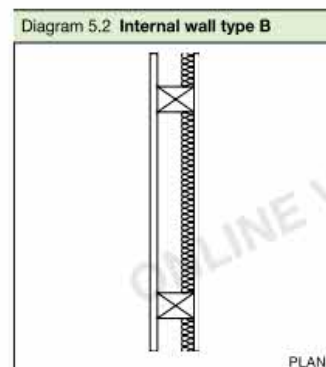
- ✓ Timber or metal frames with plasterboard lining on each side of frame.
- ✓ Each lining to be two or more layers of plasterboard, each sheet of a minimum mass per unit of 10kg/m².
- ✓ Lining Fixed to timber frame with a minimum distance between linings of 75mm, or metal frame with a minimum distance of 45mm.
- ✓ All joints well sealed.



6.2.1 Internal Wall Type B

Timber or metal frames with plasterboard lining each side of the frame and absorbent material.


- ✓ Single layer of plasterboard of minimum mass per unit area 10kg/m². Linings fixed to timber frame with a minimum distance between linings of 75mm, or metal frame with a minimum distance between linings of 45mm.
- ✓ An absorbent layer of un-faced mineral wool batts or quilt (minimum thickness 25mm, minimum density 10kg/m³) which may be wire reinforced, suspended in the cavity.

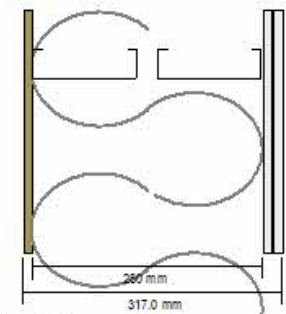


6.3 External Wall

Calculations have been based on the following calculated attenuation figures for the proposed external wall construction:

Sound Insulation Prediction (v8.0.4)
 Program copyright: Marshall Day Acoustics 2014
 - Key No. 1507
 Margin of error is generally within $R_w \pm 3$ dB
 Job Name:
 Job No.: Page No.:
 Date: 13 Feb 24 Initials: Sound Advice
 File Name: External wall.id





R_w 69 dB
 C -3 dB
 C_r -10 dB
 D_{nTW} 71 dB

12mm Cement Particle Board
 130mm metal stud with 130mm APR 1200
 100mm cavity with 100mm of APR 1200
 50mm metal stud with 50mm APR 1200
 2 x 12.5mm Soundbloc

System description

Panel 1: 1 x 12.0 mm RCM CemBoard (cement particle board) (p: 1275 kg/m³, E: 4.2 GPa, η : 0.01)

Cavity: Double steel stud: Stud spacing 600 mm, Infill: fibreglass (10kg/m³) Thickness 280 mm (p: 10 kg/m³, R: 13800 Pa.s/m²)


Panel 2: 2 x 12.5 mm Gyproc SoundBloc 12.5mm (p: 848 kg/m³, E: 3.8 GPa, η : 0.01)

6.4 Flooring

6.4.1 Residential

Calculations have been based on the following calculated attenuation figures for the proposed separating floor construction:

Sound Insulation Prediction (v8.0.4)
Program copyright: Marshall Day Acoustics 2014
 - Key No. 1507
 Margin of error is generally within $R_w \pm 3$ dB
 Job Name:
 Job No.: Page No.: Notes:
 Date: 13 Feb 24 Initials:
 File Name: partyfloor.id



R_w 70 dB
 C -1 dB
 C_T -4 dB
 D_{nTW} 72 dB (f: 500Hz, A: 11m2)

System description

Panel 1 : 1 x 225.0 mm Concrete (ρ : 2340 kg/m³, E : 11GPa, η : 0.05)

Cavity: Resilient clip or channel Stud spacing: 600 mm , infill Rockwool (40kg/m³) Thickness: 100 mm (ρ : 40 kg/m³, R_f : 16200 Pa.s/m²)

Panel 2 : 2 x 15.0 mm Gyproc SoundBloc 15mm (ρ : 840 kg/m³, E : 3.1GPa, η : 0.01)

Floor Finish
 225mm Solid Concrete
 200mm Void with 100mm of 45kg/m³ mineral wool
 Rubber Isolation Clip
 2 x 15mm Soundbloc

6.5 Flanking Noise

Flanking strips should be used on all floors and wrapped up the walls and folded over in order that the skirting boards do not touch the floor. Any deviations from this specification should be checked with ourselves prior to alteration for further calculation and analysis.

6.6 RSJ's & SVP's

Where there are any metal RSJ's or soil pipes (SVP's) these should be wrapped in 45kg/m³ insulation and double boarded with 2 layers of 15mm soundbloc. Alternatively, a preparatory Acoustic SVP could be considered if the downpipes do not run vertically through the entire building. The following company supplies suitable products, although other are available on the market.

Aliaxis – 01622 852796
 Lenham, Maidstone, Kent, ME17 2DE
 Mr Adam Catrell.

6.7 Spotlights

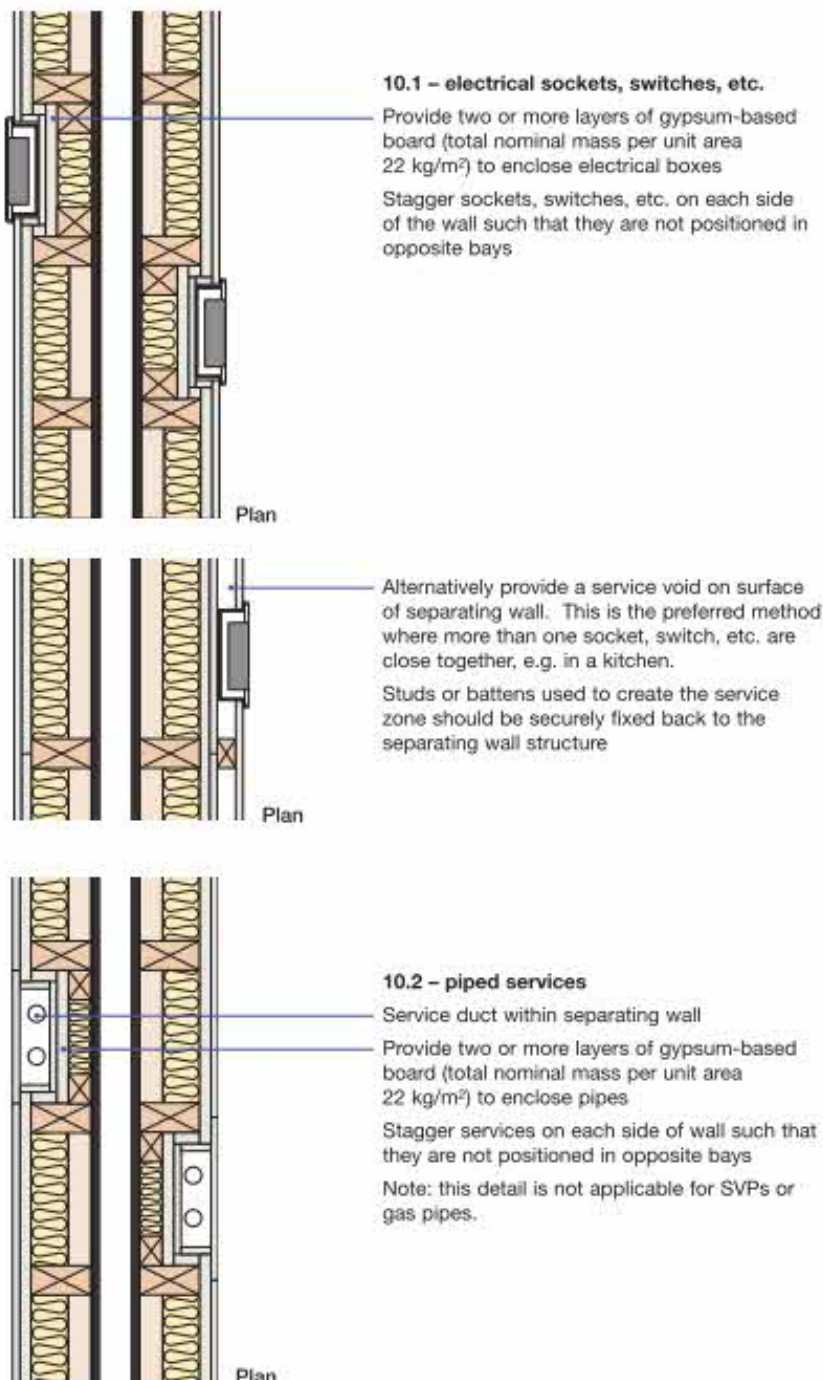
It is highly recommended that any spotlights installed within separating floors between dwellings be fitted with suitable acoustic hoods with the number of spotlights per room limited to 6 for rooms of areas less than 20m².

6.8 Sockets within Separating Walls

Back-to-back sockets should be avoided within the separating party walls of the apartments as this will reduce the overall wall sound insulation. If sockets are installed within these walls, they must be fitted with suitable British Gypsum Acoustic Boxes, or equivalent, in order to maintain the acoustic integrity of the wall itself.

Care should be taken when installing the electrical cables and a minimal diameter hole drilled for the cables to be fed through. Once the cable is installed the hole should be sealed completely around the cable using non setting acoustic mastic in order to maintain the acoustic integrity of the wall.

The following excerpt from the robust detail book gives guidance for services and sockets in the separating wall:



7 CONCLUSION

Sound Advice Acoustics Ltd has been instructed by KS4 Consulting, to assess the internal construction of the proposed development at 81 – 88 Beresford Street, London, SE18 6BG.

This assessment has been based on the requirements of the current Building Regulations 2010 Approved Document E 2003 Edition incorporating 2004, 2010, 2013 and 2015 amendments. The selected rooms within the development have indicated compliance with the current Building Regulations therefore confirming the proposed design details.

It is therefore recommended that the proposed construction methods are adopted for this development throughout. Any deviations from this specification should be checked with ourselves prior to alteration for further calculation and analysis.